MGV-41E

SERVICE MANUAL

AEP Model
UK Model
French Model

VIDEO WALKMAN COMPO

SPECIFICATIONS

System	LCD (Liquid Crystal Display) Colour Monitor
Picture	4 inches measured diagonally approx. 8.2 × 6.2 cm (3¼ × 2½ inches)
On-screen display	TL LCD/TFT active matrix method
Picture element	112, 086 (479 × 234)
Lighting system	Built-in type (small fluorescent tube)
Inputs/outputs	
A/V IN	12-pin termianl, for GV-U5E
PHONES	Stereo minijack, 8 ohms, for earphones
Power requirements	6 V DC supplied from A/V IN terminal
Power consumption	3.5W
Operating temperature	0°C to 40°C (32°F to 104°F))
Storage temperature	−20°C to 60°C (−4°F to 140°F)
Dimensions	Approx. 133 × 96 × 38 mm (w/h/d) (5¼ × 3⅞ × 1½ inches) including projecting parts and controls
Weight	Approx. 340g (12 oz)
Supplied accessories	Monitor cable (1) Stereo earphones (1) Carrying case (1) Hood (1) Handstrap (1)

Design and specifications are subject to change without notice.

Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

MICROFILM

LCD COLOR MONITOR

SONY®

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SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

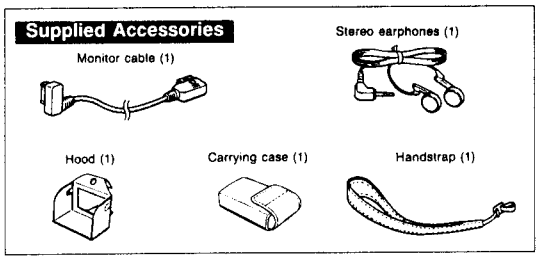
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.



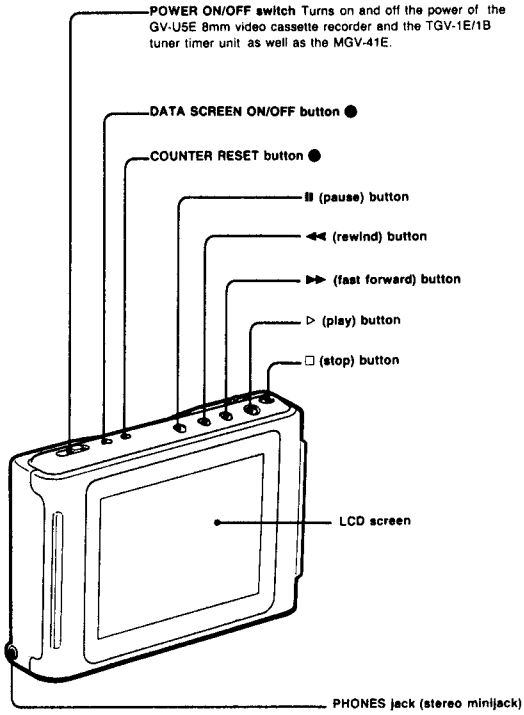
SECTION 1
GENERAL

This section is extracted from instruction manual.

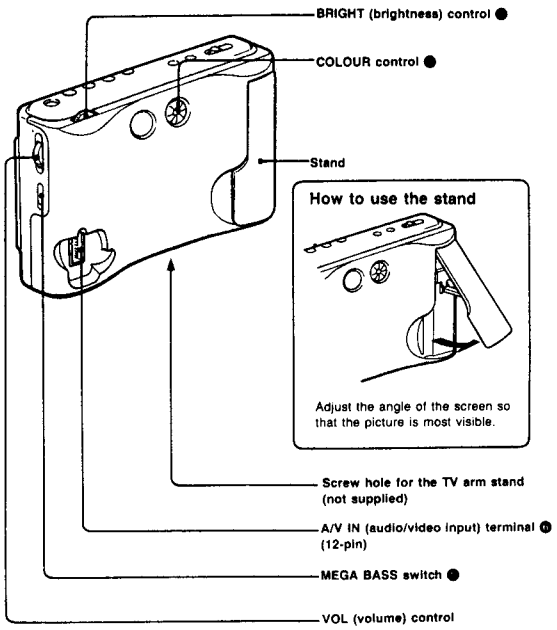
Location of Parts and Controls

Refer to the pages indicated in for details.

Front


POWER ON/OFF switch Turns on and off the power of the GV-U5E 8mm video cassette recorder and the TGV-1E/1B tuner timer unit as well as the MGV-41E.
DATA SCREEN ON/OFF button ●
COUNTER RESET button ●
II (pause) button
◀◀ (rewind) button
▶▶ (fast forward) button
▷ (play) button
□ (stop) button
LCD screen
PHONES jack (stereo minijack)

Rear


BRIGHT (brightness) control ●
COLOUR control ●
Stand
How to use the stand
Adjust the angle of the screen so that the picture is most visible.
Screw hole for the TV arm stand (not supplied)
A/V IN (audio/video input) terminal (12-pin)
MEGA BASS switch ●
VOL (volume) control

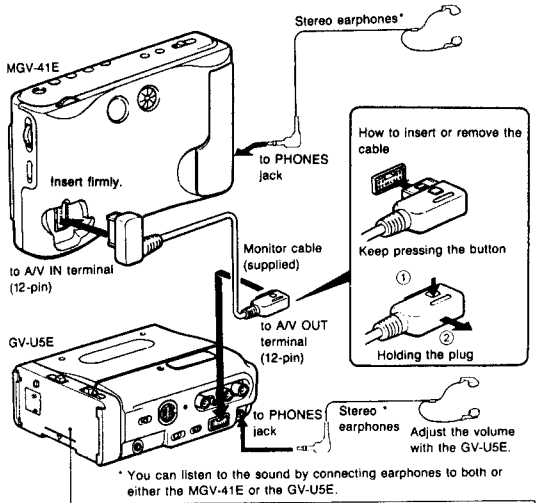
4

5

Connections

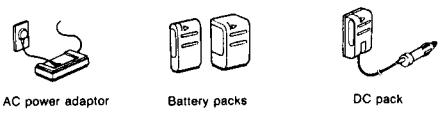
For Tape Playback

Use the supplied monitor cable to connect the A/V IN terminal (12-pin) on the MGV-41E LCD colour monitor and the A/V OUT terminal (12-pin) on the GV-U5E 8mm video cassette recorder. Before connecting, check that the power of the GV-U5E is turned off.



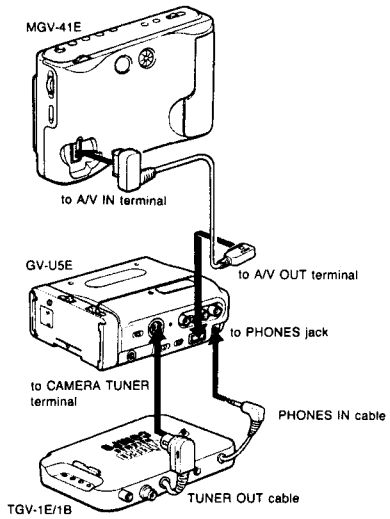
* You can listen to the sound by connecting earphones to both or either the MGV-41E or the GV-U5E.

Power Source



The power of the MGV-41E is supplied from the GV-U5E. Install the power source in the GV-U5E. (For details, refer to the operating instructions of the GV-U5E.)

For Watching TV Programmes



6

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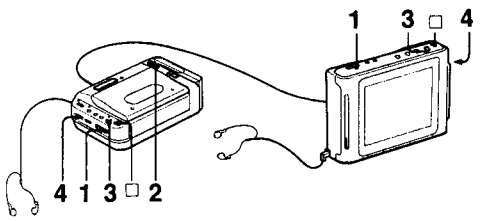
Playing Back the Tapes

There are buttons with the same function on both the MGV-41E LCD colour monitor and the GV-U5E 8mm video cassette recorder. You can use either of the two.



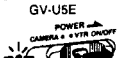
1 **Turn the power on.**
The power of the GV-U5E is also turned on.

MGV-41E

Slide POWER to the right.

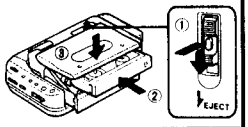
OR

GV-U5E



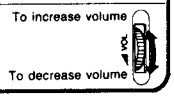
While pressing the green button, slide POWER to the right. (The switch returns automatically.)

2 **Insert a recorded tape into the GV-U5E.**



3 **Press the ▷ button to start playback.**

4 **Adjust the volume.**
When listening through the earphones connected to the GV-U5E, adjust the volume with the VOL control on the GV-U5E.



To stop playback
Press the □ button.

To rewind the tape
Press the ◀◀ button.

To advance the tape
Press the ▶▶ button.

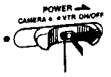
To turn the power off

MGV-41E

Slide POWER to the right.

OR

GV-U5E



While pressing the green button, slide POWER to the right. (The switch returns automatically.)

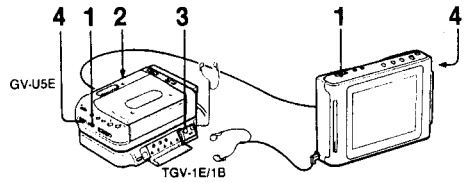
Various Playback Modes

To stop the tape for a moment — Still picture	Press the ⏸ button during playback	To resume normal playback, press the ⏸ button again or the ▷ button. The pause is automatically released after 5 minutes and the unit enters the stop mode.
To locate a particular point while viewing the picture — Picture search	Press the ▶▶ button or the ◀◀ button during playback	Horizontal bands appear in the screen. When you release the button, the previous mode resumes.
To view the picture at high speed — FR picture search	While rewinding, press the ◀◀ button. While fast forwarding, press the ▶▶ button.	

Notes
- Horizontal bands will appear in the still, picture search and FR picture search modes. No sound is heard.
- A still picture recorded in the SP mode will have more noise than in the LP mode.

Watching TV Programmes

There are buttons with the same function on both the MGV-41E LCD colour monitor and the GV-U5E 8mm video cassette recorder. You can use either of the two.

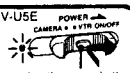


1 **Turn the power on.**
The power of the GV-U5E and the TGV-1E/1B tuner timer unit is also turned on.

MGV-41E

Slide POWER to the right.

GV-U5E OR

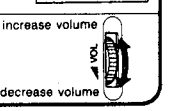


While pressing the green button, slide POWER to the right. (The switch returns automatically.)

2 **To display a TV programme, slide the LINE switch to CAMERA/TUNER on the GV-U5E.**

3 **Select the desired programme with the −/+ buttons on the TGV-1E/1B.**

4 **Adjust the volume.**
When listening through the earphones connected to the GV-U5E, adjust the volume with the VOL control on the GV-U5E.



To turn the power off
The power of the GV-U5E and TGV-1E/1B is also turned off.

MGV-41E

Slide POWER to the right.

OR

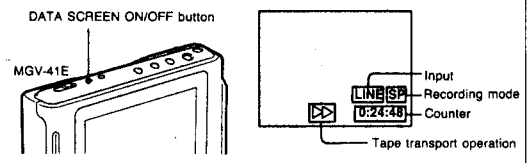
GV-U5E

While pressing the green button, slide POWER switch to the right. (The switch returns automatically.)

On-Screen Displays

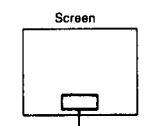
To Display the Data of the GV-U5E 8mm Video Cassette Recorder

To display the following indications of the GV-U5E 8mm video cassette recorder on the screen, press the DATA SCREEN ON/OFF button of the MGV-41E LCD colour monitor. To delete them, press the button again.



Alarm indications

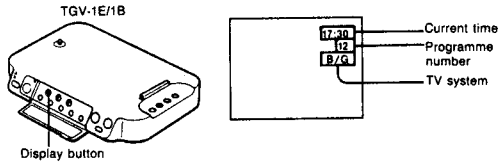
If some trouble occurs inside the GV-U5E, the following alarm indications appear on the screen of the MGV-41E:



Indications	Meaning
BATTERY (flashing slowly)	Battery will run out soon.
BATTERY (flashing quickly)	Battery has run out completely.
DEW	Moisture condensation has occured.
CLOG	The head is clogged.

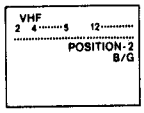
To Display the Data of the TGV-1E/1B Tuner Timer Unit

To display the following information of the TGV-1E/1B tuner timer unit on the screen, press the DISPLAY button of the TGV-1E/1B. To delete the indications, press the button again.

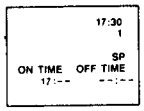


- When the DISPLAY button is pressed while you are selecting the channel with the – / + buttons, the VHF or UHF channel range appears on the screen.
- To display the data of the GV-U5E 8mm video cassette recorder together with those of the TGV-1E/1B on the screen, press the DATA SCREEN ON/OFF button on the MGV-41E LCD colour monitor.

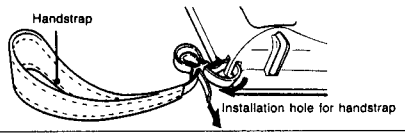
During channel presetting



During timer setting for recording



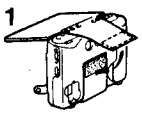
To Attach the Handstrap (supplied)



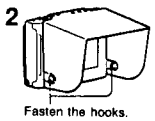
To Attach the Hood (supplied)

When using the MGV-41E outdoors or in the car, attach the hood to make the picture more visible.

Installation



Attach the Velcro tapes

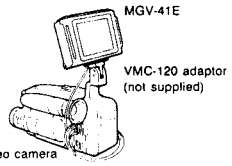


Fasten the hooks.

The hood is also used for protecting the screen by folding as below:

To avoid damaging the hood, loosen the Velcro tapes.

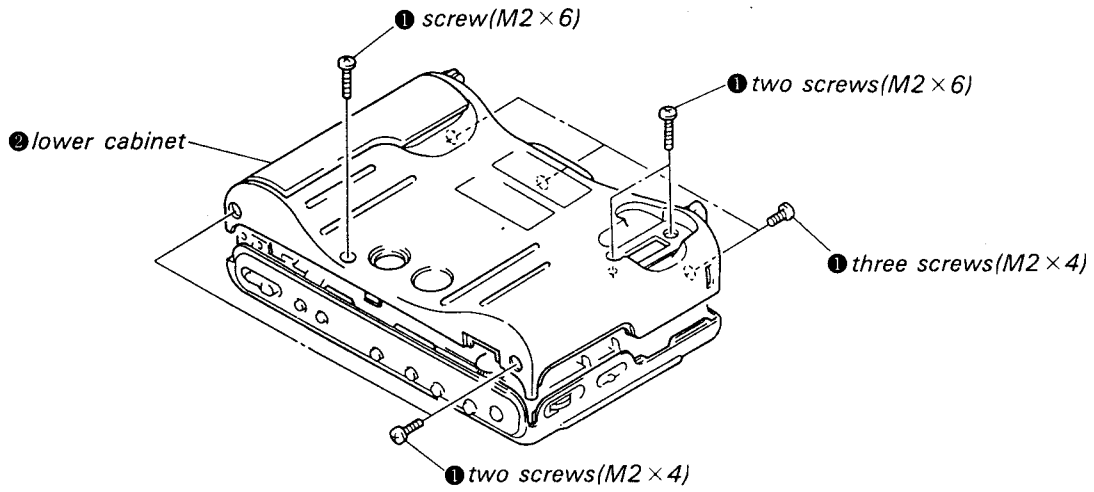
To Use the MGV-41E as a Monitor of the 8mm Video Camera



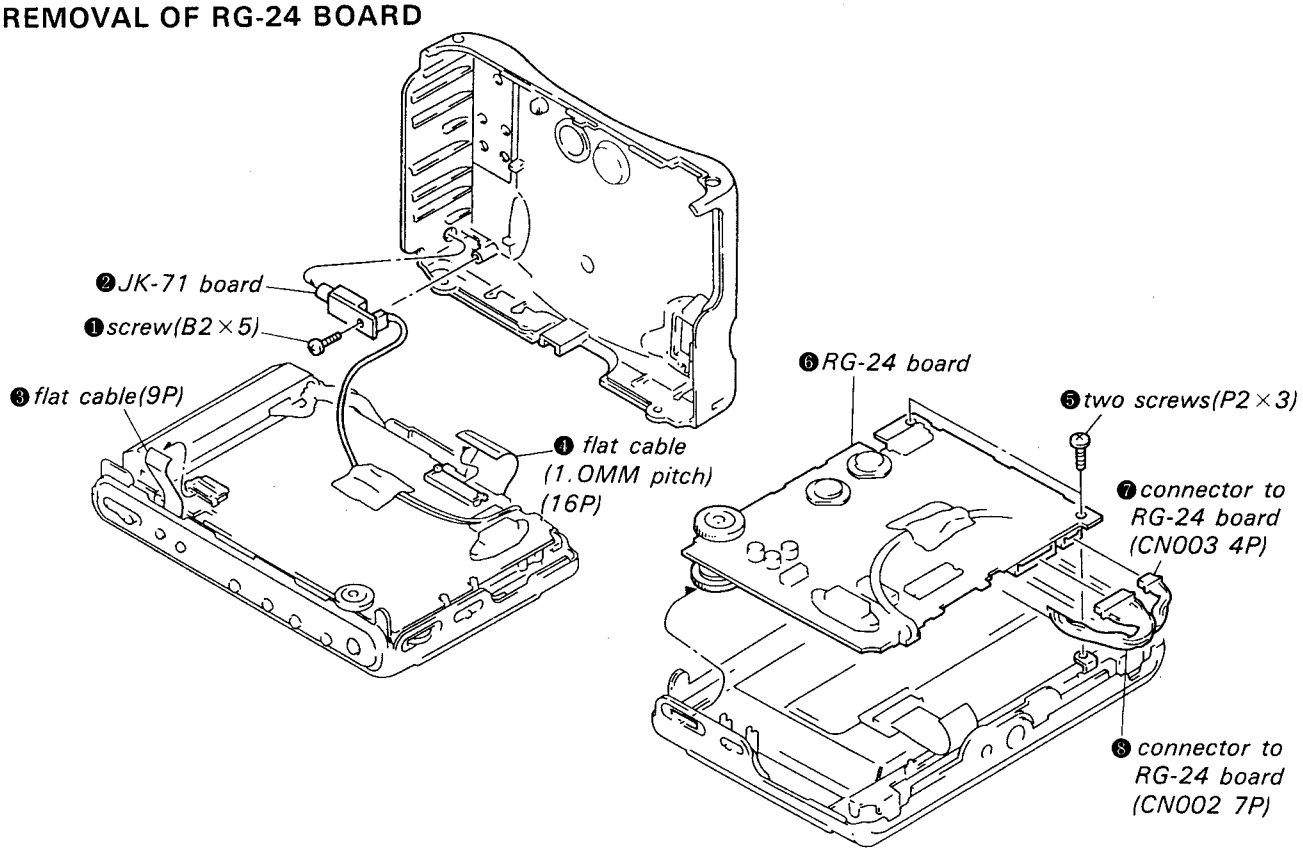
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

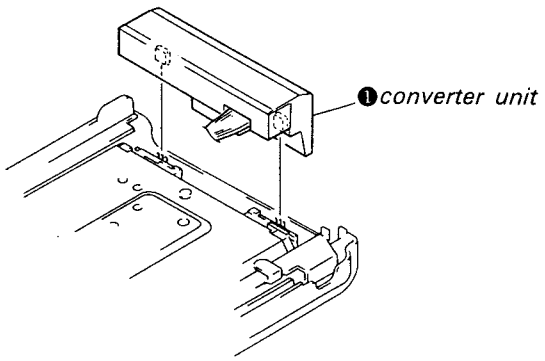
2-1. REMOVAL OF LOWER CABINET



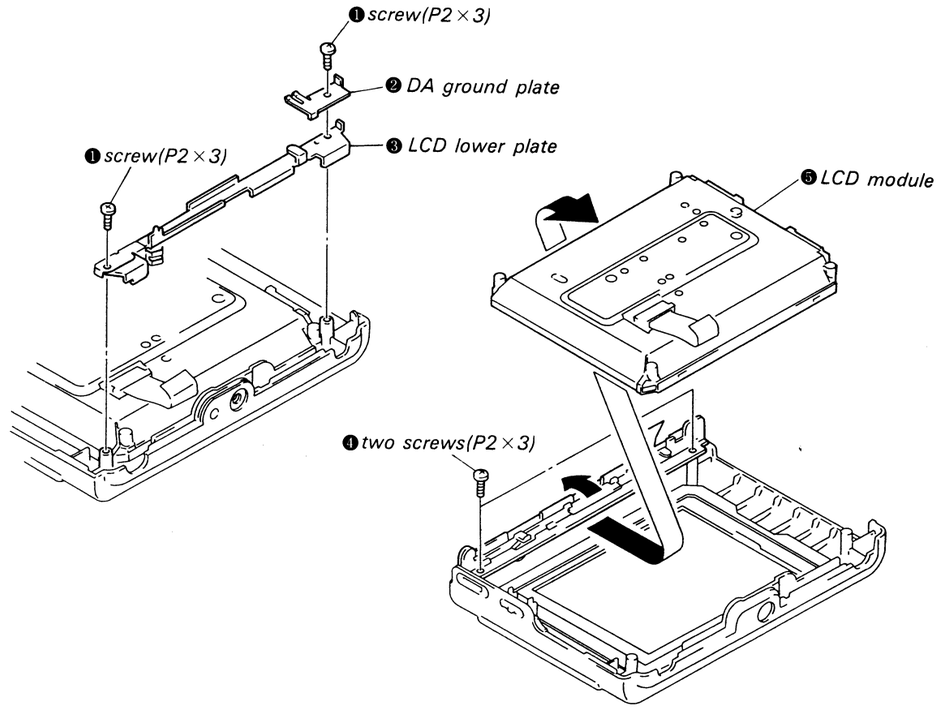
2-2. REMOVAL OF RG-24 BOARD


❷ JK-71 board
❶ screw(B2 × 5)
❸ flat cable(9P)
❹ flat cable (1.OMM pitch) (16P)
❻ RG-24 board
❺ two screws(P2 × 3)
❼ connector to RG-24 board (CN003 4P)
❽ connector to RG-24 board (CN002 7P)

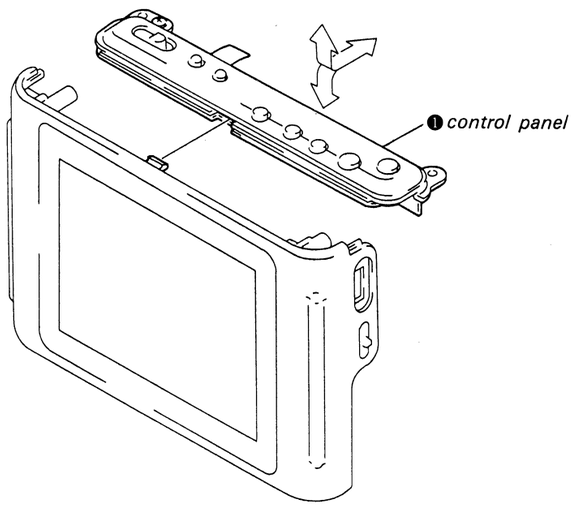
2-3. REMOVAL OF CONVERTER UNIT



2-4. REMOVAL OF LCD MODULE

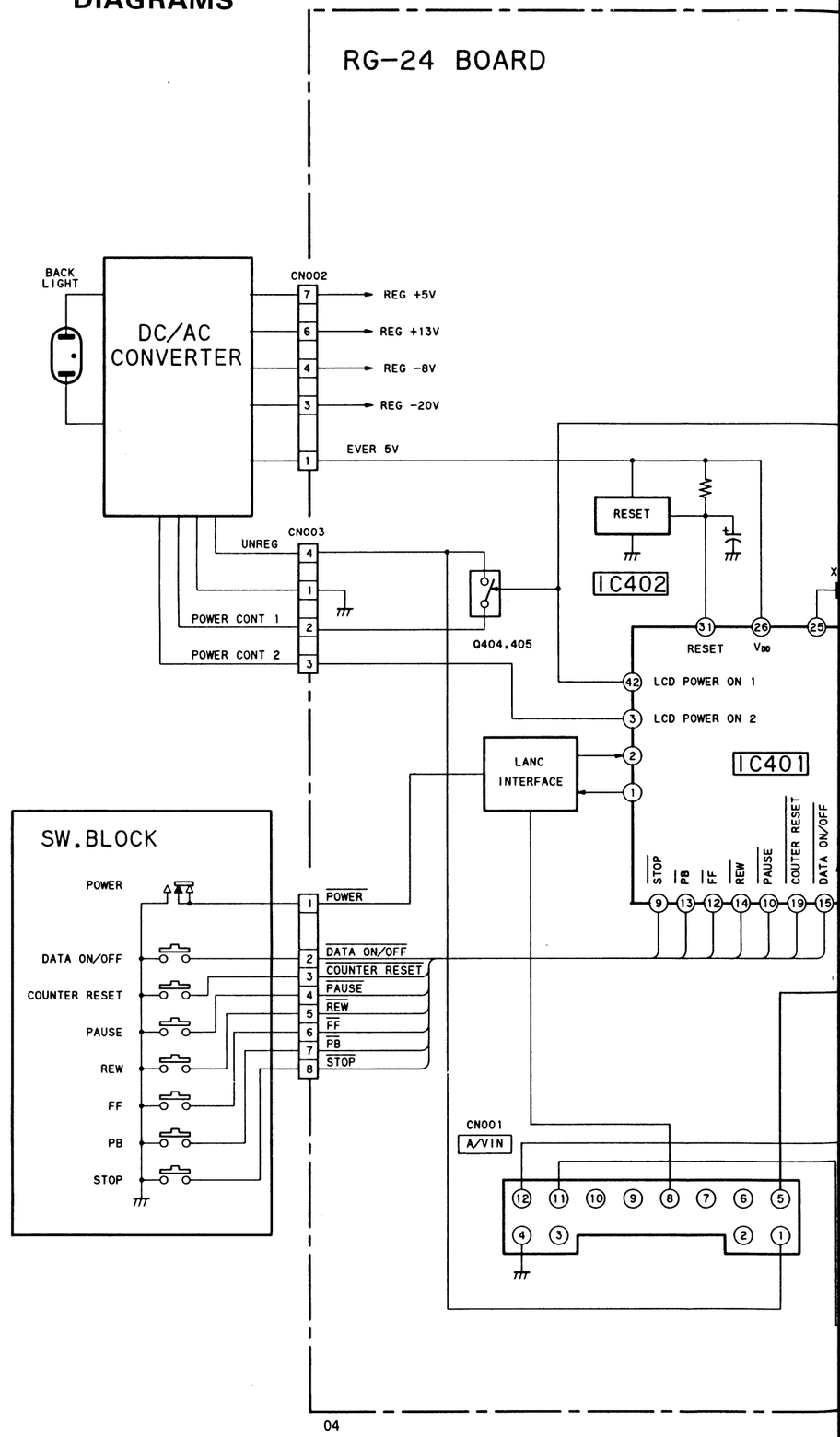


2-5. REMOVAL OF CONTROL PANEL



SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM



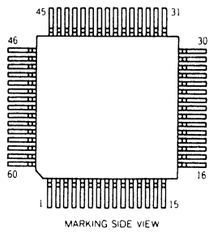
BOARD

SW 5V
IC201
CHARACTER DISPLAY
V BLK
VR
EXT VR
CV201
CHARA
IC002 (54) 0.07Vp-p(H)
RV006
CONT
RV005
R.GAIN
RV004
BRIGHT
4.5V
RV007
R.BIAS
RV009
G.BIAS
RV008
B.BIAS
CONTRAST
CLAMP
MAT RIX
EXT SW
PIX
GAIN CTRL
BUFFER
R CLAMP
G CLAMP
B CLAMP
r AMP
DRIVE BUFFER
LPF
BUFFER
Q010
Q011
Q006
Q007
Q008
Q009
IC001 (45) 7.5Vp-p(H)
IC001 (47) 7Vp-p(H)
IC001 (49) 9Vp-p(H)
CN002
V.SYNC
H.SYNC
FRP
C.SYNC
Q001
BPF
C-VIDEO
RV001
COLOR
ACC
BURST GATE
COMP
COMMON
POLALITY
FL001
Q002,003
PEAKING AMP
Y-VIDEO
CLAMP
AGC DET
AGC
VIDEO
SYNC SEP
FF
COLOR DECODE
Q001 (E) 1Vp-p(H)
IC001 (22) 0.52Vp-p(H)
KILLER
APC ID
VCO
IC001
LCD DRIVE
LCD UNIT
+13V
-20V
SW 5V
-8V
Q005
CV001
X001
CV002
FSC
RV003
B.GAIN
4.43MHz
IC001 (4) 0.1Vp-p
Q015
DL001
T001
RV002
1H
VSH 5V
QVD
RESET
IC402
X401
Q404,405
RESET
Vdd
LCD POWER ON 1
LCD POWER ON 2
LANC INTERFACE
IC401
SO
SCK
C.G.STB
SP JOG
AUDIO MUTE
STOP
PB
FF
REW
PAUSE
COUTER RESET
DATA ON/OFF
REG 5.6V
Q104,D101
REGURATOR
Q105
POWER ON/OFF MUTE
D102
UNREG
Q101,102
CN001
A/V IN
RV101
VOLUME
IC101
REG 5.6
HPF
BIAS OUT
R HP IN (R)
R OUT
Vcc
LP IN
L HP IN (L)
LP NF
ALS SW
L OUT
LPF
HPF
TC
S101
DBB
Q106
Q107
R ch
L ch
JK-71 BOARD
CN006
W001
J101
PHONES

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

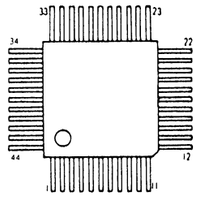
4-1. SEMICONDUCTOR LEAD LAYOUTS

M52003AFP

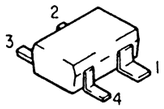


MARKING SIDE VIEW

μPD75402AGB-505-3B4

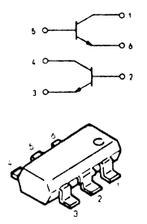


2SD1777

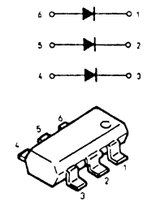


1 COLLECTOR
2 EMITTER
3 BASE
4 N.C

IMH2



IMN10



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

< DIODE >

D101	8-719-105-XX	DIODE	RD6.2M-B1
D102	8-719-400-18	DIODE	MA152WK
D103	8-719-800-76	DIODE	1SS226
D109	8-719-400-18	DIODE	MA152WK
D401	8-719-951-22	DIODE	IMN10
D402	8-719-914-44	DIODE	DAP202K
D403	8-719-420-84	DIODE	MA3075-T

< IC >

IC002	8-759-635-37	IC	M52003AFP
IC101	8-759-991-27	IC	BA3570F
IC201	8-759-142-46	IC	uPD6142G-601
IC401	8-759-153-66	IC	uPD75402A
IC402	8-759-937-56	IC	S-8054ALB-LM-S

< TRANSISTOR >

Q001	8-729-100-66	TRANSISTOR	2SC1623
Q002	8-729-100-66	TRANSISTOR	2SC1623
Q003	8-729-100-66	TRANSISTOR	2SC1623
Q005	8-729-901-01	TRANSISTOR	DTC144EK
Q006	8-729-904-41	TRANSISTOR	FMY3
Q007	8-729-904-44	TRANSISTOR	FMY4
Q008	8-729-904-41	TRANSISTOR	FMY3
Q009	8-729-904-44	TRANSISTOR	FMY4
Q010	8-729-904-41	TRANSISTOR	FMY3
Q011	8-729-904-44	TRANSISTOR	FMY4
Q012	8-729-901-03	TRANSISTOR	DTC144WK
Q015	8-729-100-66	TRANSISTOR	2SC1623
Q020	8-729-141-48	TRANSISTOR	2SB624-BV345
Q021	8-729-901-01	TRANSISTOR	DTC144EK
Q101	8-729-216-22	TRANSISTOR	2SA1162
Q102	8-729-900-52	TRANSISTOR	DTC114YK
Q104	8-729-200-87	TRANSISTOR	2SC2714Y
Q105	8-729-216-22	TRANSISTOR	2SA1162
Q106	8-729-322-30	TRANSISTOR	2SD1777
Q107	8-729-322-30	TRANSISTOR	2SD1777
Q401	8-729-100-66	TRANSISTOR	2SC1623
Q402	8-729-901-01	TRANSISTOR	DTC144EK
Q403	8-729-920-48	TRANSISTOR	IMH2
Q404	8-729-901-04	TRANSISTOR	DTA114EK
Q405	8-729-901-01	TRANSISTOR	DTC144EK

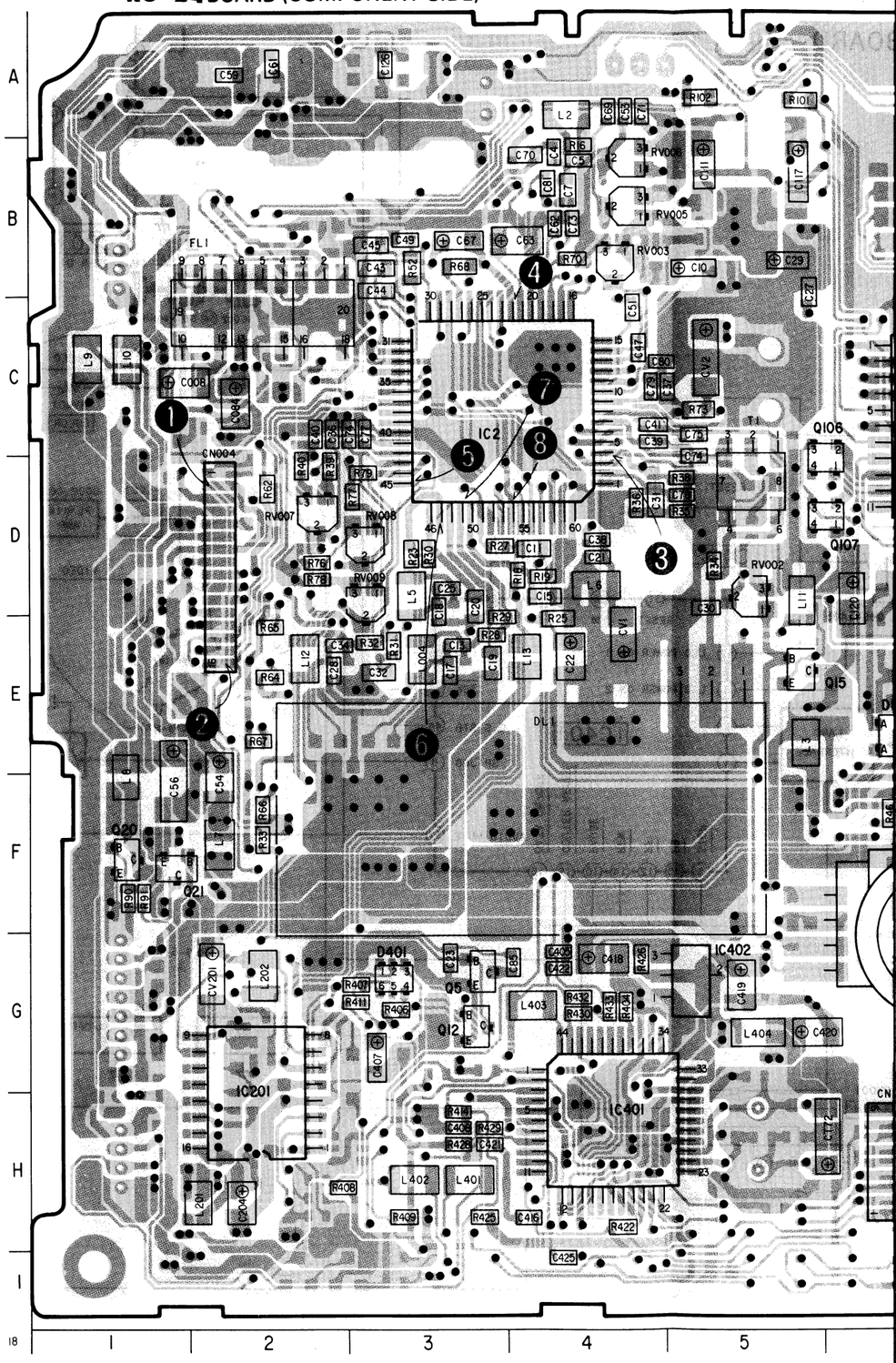
D101	D-8	Q001	B-13
D102	F-9	Q002	C-13
D103	G-9	Q003	C-13
D109	E-6	Q005	G-3
D401	G-3	Q006	D-13
D402	H-13	Q007	D-13
D403	H-12	Q008	E-13
		Q009	E-13
		Q010	F-13
IC002	C-3	Q011	E-13
IC101	C-6	Q012	G-3
IC201	H-2	Q015	E-6
IC401	H-4	Q020	F-1
IC402	G-5	Q021	F-1
		Q101	E-9
		Q102	D-9
		Q104	E-8
		Q105	F-9
		Q106	C-6
		Q107	D-6
		Q401	G-12
		Q402	G-12
		Q403	H-13
		Q404	I-13
		Q405	I-12

- **For printed wiring boards.**
- ● : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Circled numbers refer to waveforms.

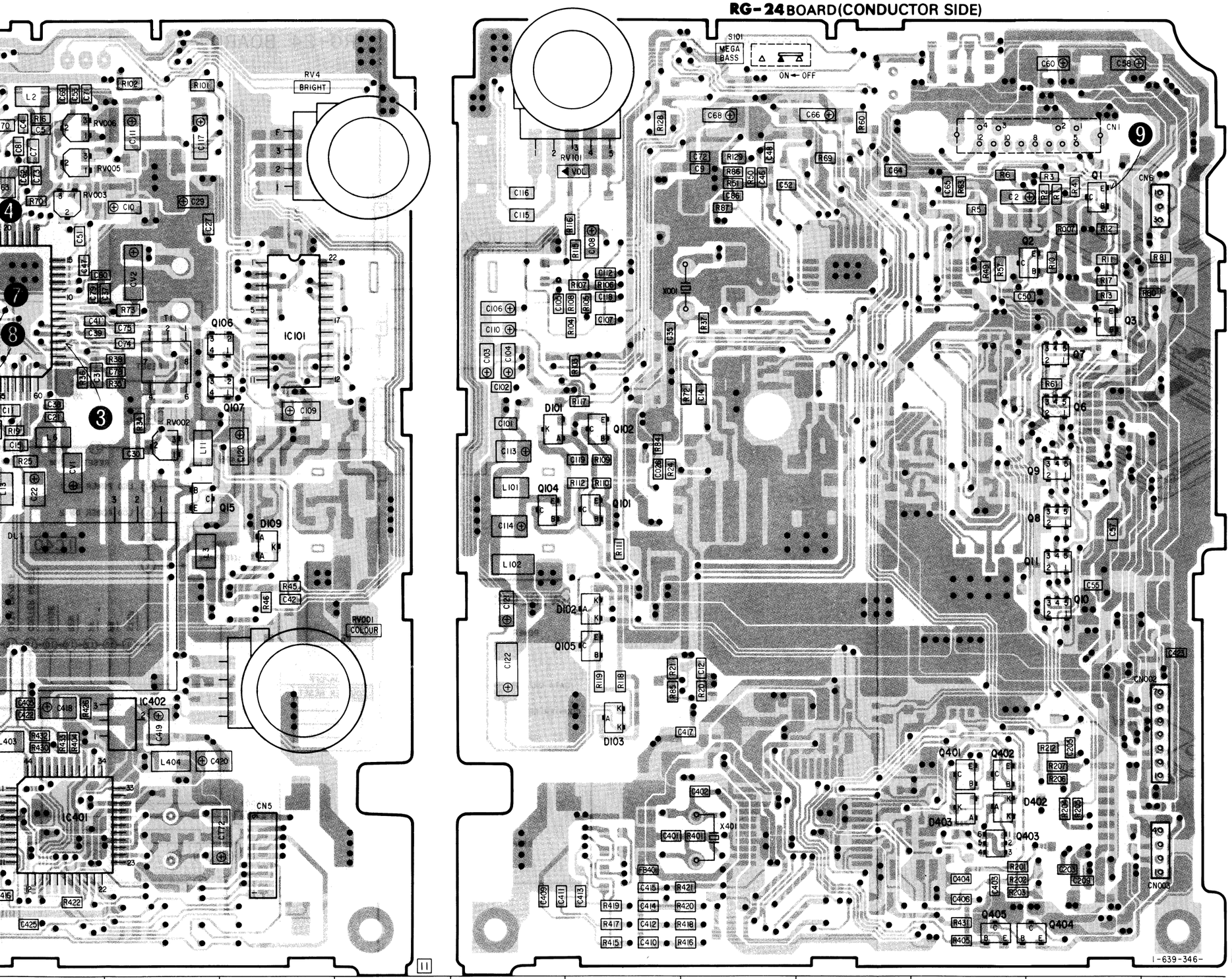
Caution:
Pattern face side: (Conductor Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side) Parts on the parts face side seen from the parts face are indicated.

RG-24(VIDEO, AUDIO, LCD DRIVE) JK-71(HEADPHONES JACK)

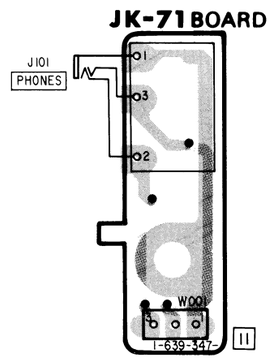
RG-24 BOARD (COMPONENT SIDE)



RG-24 BOARD (CONDUCTOR SIDE)



JK-71 BOARD



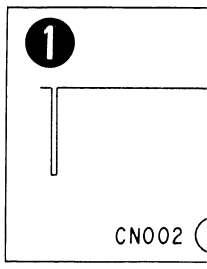
- **For schematic diagram.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W or 1/16W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ▬▬ : B+ Line
- ▬ ▬ : B− Line
- Circled numbers refer to waveforms.
- ⇨ : IN/OUT direction of B (+, −) line.
- Voltages are dc between ground and measurement points.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨	⇨	⇨

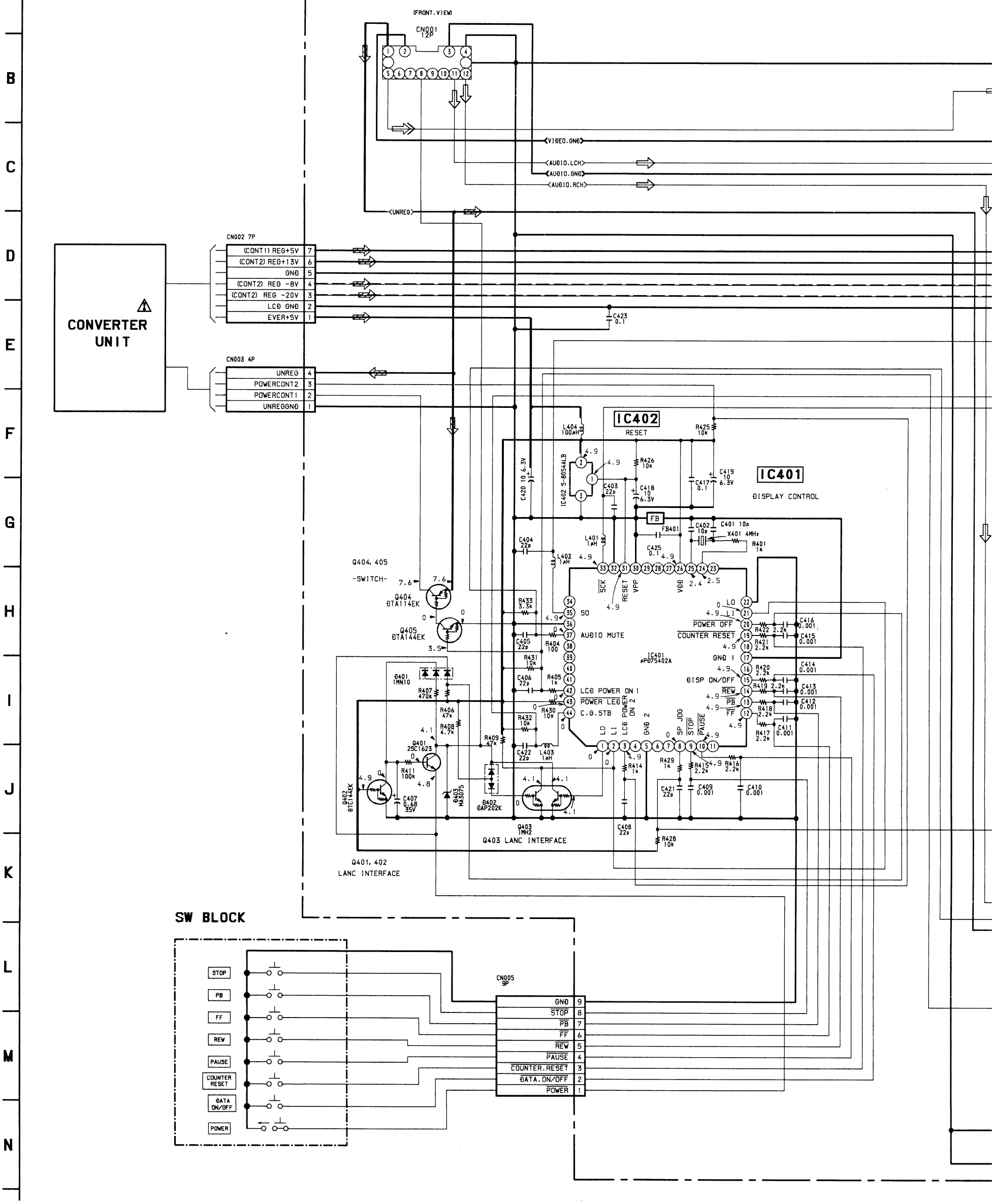
4-3. WAVEFORM

RG-24 BOAR



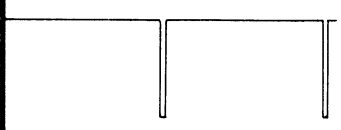
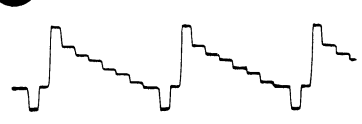
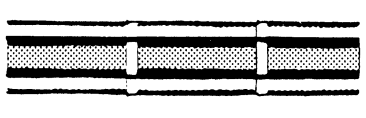
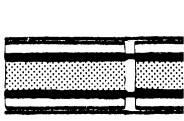
RG-24(VIDEO, AUDIO, LCD DRIVE) JK-71(HEADHPONES JACK)

RG-24 BOARD

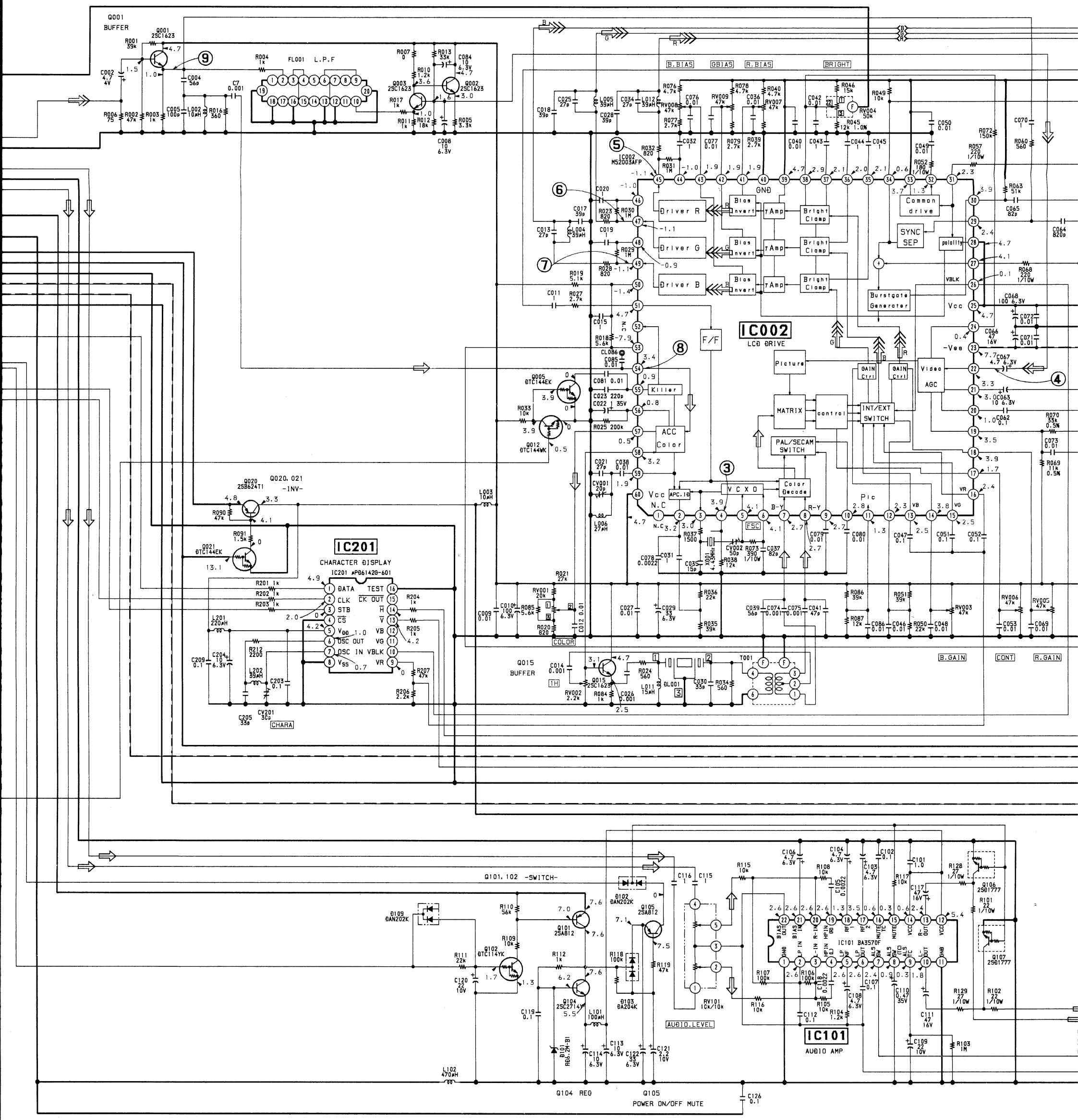


WAVEFORMES

-24 BOARD (E-E mode)

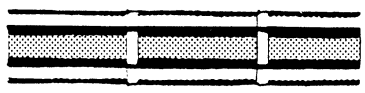
❶	❷	❸	❹	❺	❻
					
CN002 (3) 4.6Vp-p(V)	CN002 (16) 3.6Vp-p(V)	4.43MHz IC002 (4) 0.22Vp-p	IC002 (22) 0.52Vp-p(H)	IC002 (45) 5Vp-p(V)	IC002 (47

11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23



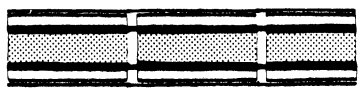
p(H)

5



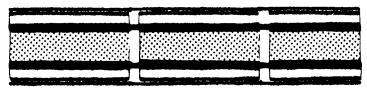
IC002 (45) 5Vp-p (V)

6



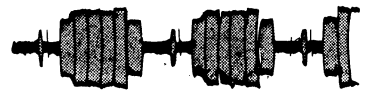
IC002 (47) 4.7Vp-p (V)

7



IC002 (49) 4.6Vp-p (V)

8



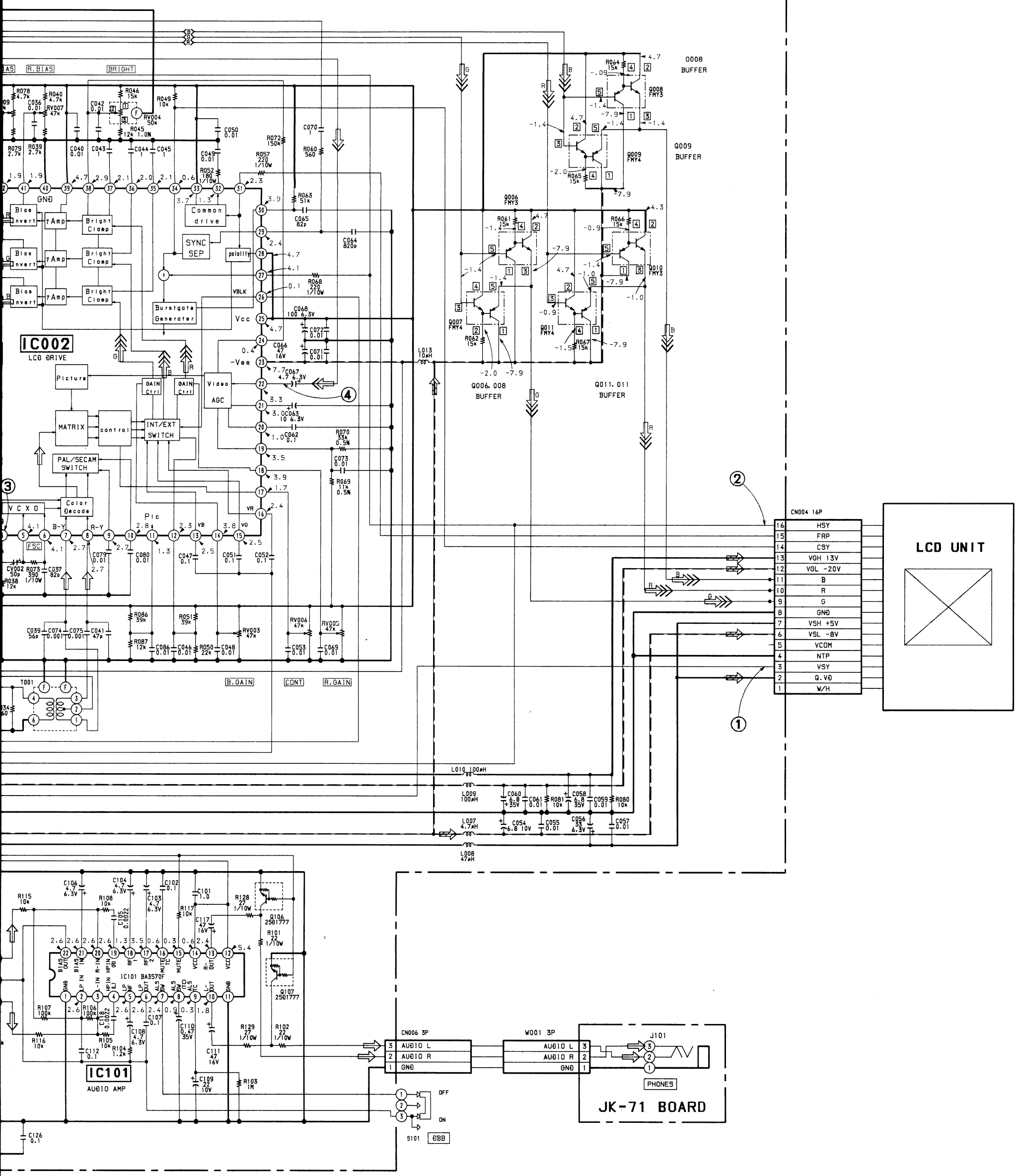
IC002 (54) 0.2Vp-p (H)

9

Q001 (E) 1Vp-p (H)

20 21 22 23 24 25 26 27 28 29 30 31

A B C D E F G H I J K L M N

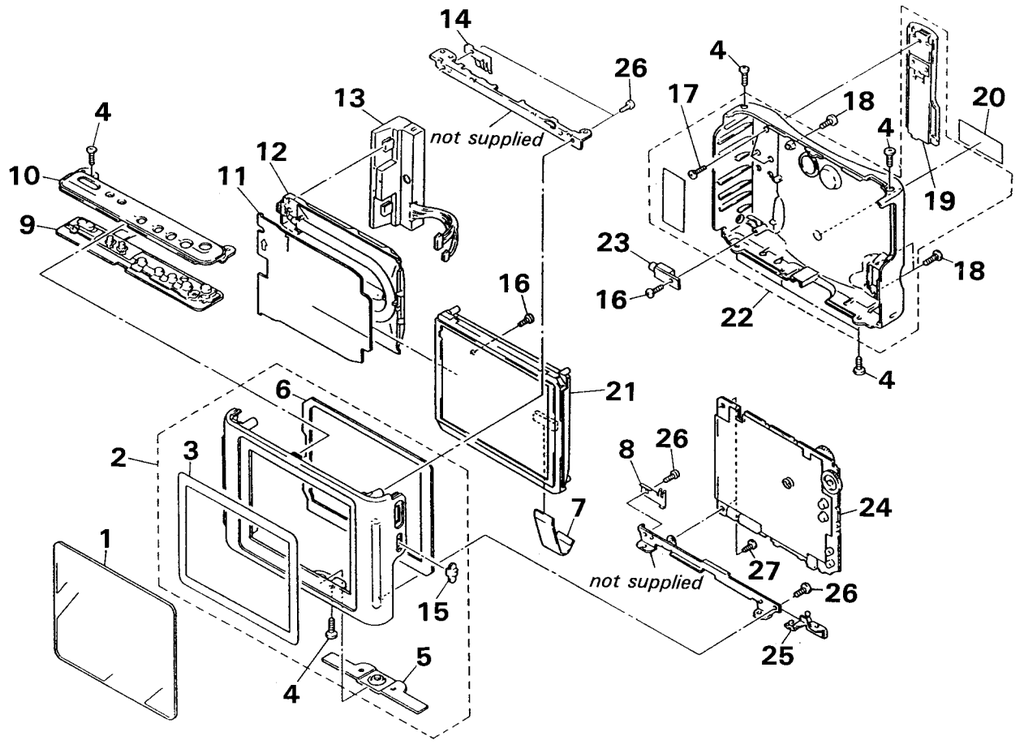


SECTION 5
EXPLODED VIEWS

NOTE:
- −XX, −X mean standardized parts, so they may have some differences from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE(WHITE)...(RED)
  ↑ ↑
  Part's Color Cabinet's Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.



Ref.No.	Part No.	Description	Remark
1	3-747-358-11	WINDOW, LCD	
2	X-3940-595-1	CABINET ASSY, UPPER	
3	3-747-366-01	SHEET, ADHESIVE, LCD WINDOW	
4	3-719-381-01	SCREW (M2X4)	
5	3-747-359-01	SCREW, TRIPOD	
6	3-747-367-01	SHEET, DUST PROTECTION	
7	1-575-939-11	CABLE, FLAT (1.0MM PITCH) 16 CORE	
8	3-749-397-01	PLATE, GROUND (DA)	
9	1-466-380-11	SWITCH BLOCK, CONTROL	
10	3-747-363-01	PANEL, CONTROL	
11	3-744-127-01	CURTAIN	
12	1-518-668-21	TUBE UNIT, FLUORECENT	
13	⚠ 1-466-396-11	CONVERTER UNIT	
14	3-749-404-01	PLATE, GROUND, LCD	
15	3-747-304-01	KNOB, DBB	
16	3-719-601-01	SCREW (B2X5), TAPPING	
17	3-719-381-31	SCREW (M2X3)	
18	3-719-381-21	SCREW (M2X6)	
19	X-3741-225-1	STAND ASSY	
20	* 3-942-506-01	LABEL, MODEL NUMBER (E)	
21	1-809-002-21	DISPLAY MODULE, LIQUID CRYSTAL	
22	X-3940-594-1	CABINET ASSY, LOWER	
23	* A-7071-408-A	JK-71 BOARD, COMPLETE	
24	* A-7062-672-A	RG-24 BOARD, COMPLETE	
25	3-747-353-01	PLATE, RG GROUND	
26	7-627-553-38	SCREW, PRECISION +P 2X3	
27	7-627-553-37	PRECISION SCREW +P 2X3 TYPE 3	

SECTION 6
ELECTRICAL PARTS LIST

JK-71 **RG-24**

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- −XX, −X mean standardized parts, so they may have some differences from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA··· : μA···, uPA··· : μPA···,
  uPB··· : μPB···, uPC··· : μPC···,
  uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
	* A-7071-408-A	JK-71 BOARD, COMPLETE			
		**********			
		< JACK >			
J101	1-562-917-11	JACK (SMALL TYPE) (PHONES)			
		**********			
	* A-7062-672-A	RG-24 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C002	1-135-151-21	TANTALUM CHIP	4.7uF	20% 4V	
C004	1-162-924-11	CERAMIC CHIP	56PF	5% 50V	
C005	1-162-927-11	CERAMIC CHIP	100PF	5% 50V	
C007	1-163-141-00	CERAMIC CHIP	0.001uF	5% 50V	
C008	1-135-157-21	TANTALUM CHIP	10uF	20% 6.3V	
C009	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C010	1-126-206-11	ELECT CHIP	100uF	20% 6.3V	
C011	1-164-634-11	CERAMIC CHIP	1uF	16V	
C012	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C013	1-162-920-11	CERAMIC CHIP	27PF	5% 50V	
C014	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C015	1-164-634-11	CERAMIC CHIP	1uF	16V	
C017	1-162-922-11	CERAMIC CHIP	39PF	5% 50V	
C018	1-162-922-11	CERAMIC CHIP	39PF	5% 50V	
C019	1-164-634-11	CERAMIC CHIP	1uF	16V	
C020	1-164-634-11	CERAMIC CHIP	1uF	16V	
C021	1-162-920-11	CERAMIC CHIP	27PF	5% 50V	
C022	1-135-076-21	TANTALUM CHIP	1uF	10% 35V	
C023	1-162-957-11	CERAMIC CHIP	220PF	5% 50V	
C025	1-162-920-11	CERAMIC CHIP	27PF	5% 50V	
C026	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C027	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C028	1-162-922-11	CERAMIC CHIP	39PF	5% 50V	
C029	1-135-162-21	TANTALUM CHIP	33uF	20% 6.3V	
C030	1-162-921-11	CERAMIC CHIP	33PF	5% 50V	
C031	1-164-634-11	CERAMIC CHIP	1uF	16V	
C032	1-164-634-11	CERAMIC CHIP	1uF	16V	
C034	1-162-920-11	CERAMIC CHIP	27PF	5% 50V	
C035	1-162-917-11	CERAMIC CHIP	15PF	5% 50V	
C036	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C037	1-162-926-11	CERAMIC CHIP	82PF	5% 50V	
C038	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C039	1-162-950-11	CERAMIC CHIP	56PF	5% 50V	
C040	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C041	1-162-923-11	CERAMIC CHIP	47PF	5% 50V	
C042	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C043	1-164-634-11	CERAMIC CHIP	1uF	16V	
C044	1-164-634-11	CERAMIC CHIP	1uF	16V	
C045	1-164-634-11	CERAMIC CHIP	1uF	16V	
C046	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C047	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C048	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C049	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C050	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C051	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C052	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C053	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C054	1-135-156-21	TANTALUM CHIP	6.8uF	10% 6.3V	
C055	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C056	1-135-162-21	TANTALUM CHIP	33uF	20% 6.3V	
C057	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C058	1-126-199-11	ELECT CHIP	6.8uF	20% 35V	
C059	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C060	1-126-199-11	ELECT CHIP	6.8uF	20% 35V	
C061	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C062	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C063	1-135-157-21	TANTALUM CHIP	33uF	20% 6.3V	
C064	1-163-139-00	CERAMIC CHIP	0.0022uF	10% 50V	
C065	1-162-926-11	CERAMIC CHIP	82PF	5% 50V	
C066	1-126-204-11	ELECT CHIP	47uF	20% 16V	
C067	1-135-181-21	TANTALUM CHIP	4.7uF	20% 16V	
C068	1-126-206-11	ELECT CHIP	100uF	20% 6.3V	
C069	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C070	1-164-634-11	CERAMIC CHIP	1uF	16V	
C071	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C072	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C073	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C074	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C075	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C076	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C077	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C078	1-162-966-11	CERAMIC CHIP	0.0033uF	10% 50V	
C079	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C080	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C081	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C084	1-135-157-21	TANTALUM CHIP	33uF	20% 6.3V	
C085	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C086	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C101	1-164-634-11	CERAMIC CHIP	1uF	16V	
C102	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C103	1-135-181-21	TANTALUM CHIP	4.7uF	20% 16V	
C104	1-135-181-21	TANTALUM CHIP	4.7uF	20% 16V	
C105	1-162-966-11	CERAMIC CHIP	0.0033uF	10% 50V	
C106	1-135-181-21	TANTALUM CHIP	4.7uF	20% 16V	
C107	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C108	1-135-181-21	TANTALUM CHIP	4.7uF	20% 16V	
C109	1-135-161-21	TANTALUM CHIP	22uF	20% 10V	
C110	1-135-145-11	TANTALUM CHIP	10uF	20% 16V	
C111	1-126-204-11	ELECT CHIP	47uF	20% 16V	
C112	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C113	1-135-157-21	TANTALUM CHIP	33uF	20% 6.3V	
C114	1-135-157-21	TANTALUM CHIP	33uF	20% 6.3V	
C115	1-164-634-11	CERAMIC CHIP	1uF	16V	
C116	1-164-634-11	CERAMIC CHIP	1uF	16V	
C117	1-126-204-11	ELECT CHIP	47uF	20% 16V	
C118	1-162-966-11	CERAMIC CHIP	0.0033uF	10% 50V	
C119	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C120	1-135-161-21	TANTALUM CHIP	22uF	20% 10V	
C121	1-135-149-21	TANTALUM CHIP	100uF	20% 6.3V	
C122	1-135-162-21	TANTALUM CHIP	33uF	20% 6.3V	
C126	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C203	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C204	1-135-157-21	TANTALUM CHIP	33uF	20% 6.3V	
C205	1-162-921-11	CERAMIC CHIP	33PF	5% 50V	
C209	1-164-156-11	CERAMIC CHIP	0.1uF	25V	

When indicating parts by reference number, please include the board name.

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				5%	50V
				20%	6.3V
				5%	50V
					16V
					16V
				5%	50V
				5%	50V
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				5%	50V
					50V
				5%	50V
					50V
					16V
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					50V
				10%	6.3V
					50V
				20%	6.3V
					50V
				20%	35V
					50V
				20%	35V
					50V
					25V

Ref.No.	Part No.	Description			Remark
C063	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C064	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C065	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C066	1-126-204-11	ELECT CHIP	47uF	20%	16V
C067	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C068	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C069	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C070	1-164-634-11	CERAMIC CHIP	1uF		16V
C071	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C072	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C073	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C074	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C075	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C076	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C077	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C078	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C079	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C080	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C081	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C084	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C085	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C086	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C101	1-164-634-11	CERAMIC CHIP	1uF		16V
C102	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C103	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C104	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C105	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C106	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C107	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C108	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C109	1-135-161-21	TANTALUM CHIP	22uF	10%	6.3V
C110	1-135-145-11	TANTALUM CHIP	0.47uF	10%	25V
C111	1-126-204-11	ELECT CHIP	47uF	20%	16V
C112	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C113	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C114	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C115	1-164-634-11	CERAMIC CHIP	1uF		16V
C116	1-164-634-11	CERAMIC CHIP	1uF		16V
C117	1-126-204-11	ELECT CHIP	47uF	20%	16V
C118	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C119	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C120	1-135-161-21	TANTALUM CHIP	22uF	10%	6.3V
C121	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C122	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V
C126	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C203	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C204	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C205	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C209	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref.No.	Part No.	Description			Remark
C401	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C402	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C403	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C404	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C405	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C406	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C407	1-135-176-21	TANTALUM CHIP	0.68uF	10%	20V
C408	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C409	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C410	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C411	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C412	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C413	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C414	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C415	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C416	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C417	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C418	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C419	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C420	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C421	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C422	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C423	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C425	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

CN001	1-580-008-11	PLUG, CONNECTORR (SQUARE)	12P
CN002	1-565-879-11	PIN, CONNECTOR (PC BOARD)	7P
CN003 *	1-565-876-11	PIN, CONNECTOR (PC BOARD)	4P
CN004	1-568-238-11	CONNECTOR, FPC (1.0MM) (ZIF)	16P
CN005	1-566-525-11	CONNECTOR, FPC (ZIF)	9P
CN006 *	1-565-875-11	PIN, CONNECTOR (PC BOARD)	3P

< TRIMMER >

CV001	1-141-311-11	CAP, TRIMMER 20PF
CV002	1-141-370-11	CAP, CHIP TRIMMER 50PF
CV201	1-141-331-11	CAP, CHIP TRIMMER 30PF

< DIODE >

D101	8-719-105-XX	DIODE	RD6.2M-B1
D102	8-719-400-18	DIODE	MA152WK
D103	8-719-800-76	DIODE	1SS226
D109	8-719-400-18	DIODE	MA152WK
D401	8-719-951-22	DIODE	IMN10
D402	8-719-914-44	DIODE	DAP202K
D403	8-719-420-84	DIODE	MA3075-T

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
		< DELAY LINE >	
DL001	1-415-649-11	DELAY LINE, 1H (ULTRASONIC)	
		< INDUCTOR >	
FB401	1-410-993-11	INDUCTOR, CHIP 1uH	
		< FILTER >	
FL001	1-236-955-11	FILTER, LOW PASS (Y:PAL)	
		< IC >	
IC002	8-759-635-37	IC M52003AFP	
IC101	8-759-991-27	IC BA3570F	
IC201	8-759-142-46	IC uPD6142G-601	
IC401	8-759-153-66	IC uPD75402A	
IC402	8-759-937-56	IC S-8054ALB-LM-S	
		< COIL >	
L002	1-410-381-11	INDUCTOR CHIP 10uH	
L003	1-412-029-11	INDUCTOR CHIP 10uH	
L004	1-410-388-21	INDUCTOR CHIP 39uH	
L005	1-410-388-21	INDUCTOR CHIP 39uH	
L006	1-410-386-11	INDUCTOR CHIP 27uH	
L007	1-410-377-31	INDUCTOR CHIP 4.7uH	
L008	1-412-031-11	INDUCTOR CHIP 47uH	
L009	1-410-393-11	INDUCTOR CHIP 100uH	
L010	1-410-393-11	INDUCTOR CHIP 100uH	
L011	1-410-383-31	INDUCTOR CHIP 15uH	
L012	1-410-388-21	INDUCTOR CHIP 39uH	
L013	1-412-029-11	INDUCTOR CHIP 10uH	
L101	1-410-393-11	INDUCTOR CHIP 100uH	
L102	1-412-282-41	INDUCTOR 470uH	
L201	1-410-658-31	INDUCTOR CHIP 220uH	
L202	1-412-143-11	INDUCTOR 39uH	
L401	1-410-369-11	INDUCTOR CHIP 1uH	
L402	1-410-369-11	INDUCTOR CHIP 1uH	
L403	1-410-369-11	INDUCTOR CHIP 1uH	
L404	1-410-393-11	INDUCTOR CHIP 100uH	
		< TRANSISTOR >	
Q001	8-729-100-66	TRANSISTOR 2SC1623	
Q002	8-729-100-66	TRANSISTOR 2SC1623	
Q003	8-729-100-66	TRANSISTOR 2SC1623	
Q005	8-729-901-01	TRANSISTOR DTC144EK	
Q006	8-729-904-41	TRANSISTOR FMY3	
Q007	8-729-904-44	TRANSISTOR FMY4	
Q008	8-729-904-41	TRANSISTOR FMY3	
Q009	8-729-904-44	TRANSISTOR FMY4	
Q010	8-729-904-41	TRANSISTOR FMY3	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
Q011	8-729-904-44	TRANSISTOR	FMY4		
Q012	8-729-901-03	TRANSISTOR	DTC144WK		
Q015	8-729-100-66	TRANSISTOR	2SC1623		
Q020	8-729-141-48	TRANSISTOR	2SB624-BV345		
Q021	8-729-901-01	TRANSISTOR	DTC144EK		
Q101	8-729-216-22	TRANSISTOR	2SA1162		
Q102	8-729-900-52	TRANSISTOR	DTC114YK		
Q104	8-729-200-87	TRANSISTOR	2SC2714Y		
Q105	8-729-216-22	TRANSISTOR	2SA1162		
Q106	8-729-322-30	TRANSISTOR	2SD1777		
Q107	8-729-322-30	TRANSISTOR	2SD1777		
Q401	8-729-100-66	TRANSISTOR	2SC1623		
Q402	8-729-901-01	TRANSISTOR	DTC144EK		
Q403	8-729-920-48	TRANSISTOR	IMH2		
Q404	8-729-901-04	TRANSISTOR	DTA114EK		
Q405	8-729-901-01	TRANSISTOR	DTC144EK		
		< RESISTOR >			
R001	1-216-840-11	METAL CHIP	39K	5%	1/16W
R002	1-216-841-11	METAL CHIP	47K	5%	1/16W
R003	1-216-821-11	METAL CHIP	1K	5%	1/16W
R004	1-216-821-11	METAL CHIP	1K	5%	1/16W
R005	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R006	1-218-285-11	METAL GLAZE	75	5%	1/16W
R007	1-216-864-11	METAL CHIP	0		
R010	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R011	1-216-821-11	METAL CHIP	1K	5%	1/16W
R012	1-216-836-11	METAL CHIP	18K	5%	1/16W
R013	1-216-839-11	METAL CHIP	33K	5%	1/16W
R016	1-218-269-11	METAL GLAZE	360	5%	1/16W
R017	1-216-821-11	METAL CHIP	1K	5%	1/16W
R018	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R019	1-218-272-11	METAL GLAZE	5.1K	5%	1/16W
R020	1-216-820-11	METAL CHIP	820	5%	1/16W
R021	1-216-838-11	METAL CHIP	27K	5%	1/16W
R023	1-216-820-11	METAL CHIP	820	5%	1/16W
R024	1-216-818-11	METAL CHIP	560	5%	1/16W
R025	1-216-104-00	METAL CHIP	200K	5%	1/10W
R027	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R028	1-216-820-11	METAL CHIP	820	5%	1/16W
R029	1-216-857-11	METAL CHIP	1M	5%	1/16W
R030	1-216-857-11	METAL CHIP	1M	5%	1/16W
R031	1-216-857-11	METAL CHIP	1M	5%	1/16W
R032	1-216-820-11	METAL CHIP	820	5%	1/16W
R033	1-216-833-11	METAL CHIP	10K	5%	1/16W
R034	1-216-818-11	METAL CHIP	560	5%	1/16W
R035	1-216-840-11	METAL CHIP	39K	5%	1/16W
R036	1-216-837-11	METAL CHIP	22K	5%	1/16W
R037	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R038	1-216-834-11	METAL CHIP	12K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R039	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R040	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R045	1-218-304-11	METAL GLAZE	12K	1%	1/16W
R046	1-218-320-11	METAL GLAZE	15K	1%	1/16W
R049	1-216-833-11	METAL CHIP	10K	5%	1/16W
R050	1-216-837-11	METAL CHIP	22K	5%	1/16W
R051	1-216-840-11	METAL CHIP	39K	5%	1/16W
R052	1-216-031-00	METAL CHIP	180	5%	1/10W
R057	1-216-033-00	METAL CHIP	220	5%	1/10W
R060	1-216-818-11	METAL CHIP	560	5%	1/16W
R061	1-216-835-11	METAL CHIP	15K	5%	1/16W
R062	1-216-835-11	METAL CHIP	15K	5%	1/16W
R063	1-218-331-11	METAL GLAZE	51K	5%	1/16W
R064	1-216-835-11	METAL CHIP	15K	5%	1/16W
R065	1-216-835-11	METAL CHIP	15K	5%	1/16W
R066	1-216-835-11	METAL CHIP	15K	5%	1/16W
R067	1-216-835-11	METAL CHIP	15K	5%	1/16W
R068	1-216-033-00	METAL CHIP	220	5%	1/10W
R069	1-218-330-11	METAL CHIP	11K	0.50%	1/16W
R070	1-218-728-91	METAL CHIP	33K	0.50%	1/16W
R072	1-216-847-11	METAL CHIP	150K	5%	1/16W
R073	1-216-039-00	METAL CHIP	390	5%	1/10W
R076	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R077	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R078	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R079	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R080	1-216-833-11	METAL CHIP	10K	5%	1/16W
R081	1-216-833-11	METAL CHIP	10K	5%	1/16W
R084	1-216-821-11	METAL CHIP	1K	5%	1/16W
R085	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R086	1-216-840-11	METAL CHIP	39K	5%	1/16W
R087	1-216-834-11	METAL CHIP	12K	5%	1/16W
R090	1-216-841-11	METAL CHIP	47K	5%	1/16W
R091	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R101	1-216-009-00	METAL CHIP	22	5%	1/10W
R102	1-216-009-00	METAL CHIP	22	5%	1/10W
R103	1-216-857-11	METAL CHIP	1M	5%	1/16W
R104	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R105	1-216-833-11	METAL CHIP	10K	5%	1/16W
R106	1-216-845-11	METAL CHIP	100K	5%	1/16W
R107	1-216-845-11	METAL CHIP	100K	5%	1/16W
R108	1-216-833-11	METAL CHIP	10K	5%	1/16W
R109	1-216-833-11	METAL CHIP	10K	5%	1/16W
R110	1-216-842-11	METAL CHIP	56K	5%	1/16W
R111	1-216-837-11	METAL CHIP	22K	5%	1/16W
R112	1-216-821-11	METAL CHIP	1K	5%	1/16W
R115	1-216-833-11	METAL CHIP	10K	5%	1/16W
R116	1-216-833-11	METAL CHIP	10K	5%	1/16W
R117	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R118	1-216-845-11	METAL CHIP	100K	5%	1/16W
R119	1-216-841-11	METAL CHIP	47K	5%	1/16W
R128	1-216-011-00	METAL CHIP	27	5%	1/10W
R129	1-216-011-00	METAL CHIP	27	5%	1/10W
R201	1-216-821-11	METAL CHIP	1K	5%	1/16W
R202	1-216-821-11	METAL CHIP	1K	5%	1/16W
R203	1-216-821-11	METAL CHIP	1K	5%	1/16W
R204	1-216-821-11	METAL CHIP	1K	5%	1/16W
R205	1-216-821-11	METAL CHIP	1K	5%	1/16W
R206	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R207	1-216-841-11	METAL CHIP	47K	5%	1/16W
R212	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R401	1-216-821-11	METAL CHIP	1K	5%	1/16W
R404	1-216-809-11	METAL CHIP	100	5%	1/16W
R405	1-216-821-11	METAL CHIP	1K	5%	1/16W
R406	1-216-841-11	METAL CHIP	47K	5%	1/16W
R407	1-216-853-11	METAL CHIP	470K	5%	1/16W
R408	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R409	1-216-841-11	METAL CHIP	47K	5%	1/16W
R411	1-216-845-11	METAL CHIP	100K	5%	1/16W
R414	1-216-821-11	METAL CHIP	1K	5%	1/16W
R415	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R416	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R417	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R418	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R419	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R420	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R421	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R422	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R425	1-216-833-11	METAL CHIP	10K	5%	1/16W
R426	1-216-833-11	METAL CHIP	10K	5%	1/16W
R428	1-216-833-11	METAL CHIP	10K	5%	1/16W
R429	1-216-821-11	METAL CHIP	1K	5%	1/16W
R430	1-216-833-11	METAL CHIP	10K	5%	1/16W
R431	1-216-833-11	METAL CHIP	10K	5%	1/16W
R432	1-216-833-11	METAL CHIP	10K	5%	1/16W
R433	1-216-827-11	METAL CHIP	3.3K	5%	1/16W

< VARIABLE RESISTOR >

RV001	1-241-118-11	RES, VAR, CARBON 20K
RV002	1-238-088-11	RES, ADJ, CERMET 2.2K
RV003	1-238-092-11	RES, ADJ CERMET47K
RV004	1-241-006-11	RES, VAR, CARBON 50K
RV005	1-238-092-11	RES, ADJ CERMET47K
RV006	1-238-092-11	RES, ADJ CERMET47K
RV007	1-238-092-11	RES, ADJ CERMET47K
RV008	1-238-092-11	RES, ADJ CERMET47K
RV009	1-238-092-11	RES, ADJ CERMET47K
RV101	1-241-193-21	RES, VAR, CARBON 10K/10K (AUDIO LEVEL)

When indicating parts by reference number, please include the board name.

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Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S101	1-570-675-11	SWITCH, SLIDE (DBB)	
		< COIL >	
T001	1-459-949-11	COIL	
		< CRYSTAL >	
X001	1-567-504-81	OSCILLATOR, CRYSTAL (4.43MHz)	
X401	1-579-066-11	VIBRATOR, CRYSTAL (4MHz)	
**********			
		MISCELLANEOUS	
		**********	
7	1-575-939-11	CABLE, FLAT (1.0MM PITCH) 16 CORE	
9	1-466-380-11	SWITCH BLOCK, CONTROL	
12	1-518-668-21	TUBE UNIT, FLUORECENT	
13	⚠ 1-466-396-11	CONVERTER UNIT	
21	1-809-002-21	DISPLAY MODULE, LIQUID CRYSTAL	
**********			
		ACCESSORY & PACKING MATERIAL	
		**********	
	1-575-921-11	CORD, CONNECTION	
	3-741-236-01	STRAP, HAND	
*	3-741-264-01	CUSHION (UPPER)	
*	3-741-265-01	CUSHION (LOWER)	
	3-747-361-01	CASE, CARRYING	
*	3-942-299-01	INDIVIDUAL CARTON	
	3-749-124-01	HOOD	
	3-751-988-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-751-988-41	MANUAL, INSTRUCTION (FRENCH/GERMAN/SPANISH)	
	3-751-988-51	MANUAL, INSTRUCTION (DUTCH/SWEDISH/ITALIAN)	
	8-952-350-90	MDR-E454/1B SET (HEAD PHONE)	
**********			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

SECTION 7
ELECTRICAL ADJUSTMENTS

See the adjusting parts location diagram from on page 30 for the adjustment.

7-1. PREPARATION FOR ADJUSTMENT

The following measurement instruments are used for the electric adjustment.

7-1-1. Using Instruments

1) Oscilloscope having two phenomena, band of 10MHz or more, and the delay mode.
2) Frequency counter
3) Pattern generator (having the video output terminal)
4) Digital voltmeter
5) Stabilized power source
6) COMMON voltage adjustment jig (J-6082-024-A)
7) Video casstte recorder (GV-U5E)

7-1-2. Connection of Instruments

If there is no special direction, connect the measuring instruments as shown in the following figure and perform the adjustment.

・Video cassette recorder switch position
LINE IN/OUT switch : IN

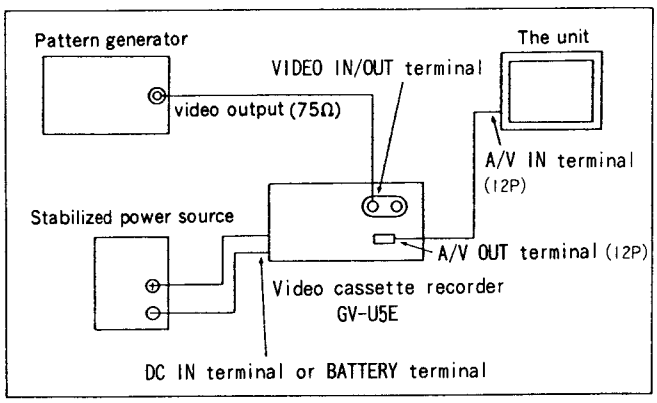


Fig. 7-1

7-2. POWER SOURCE PART CHECKING (RG-24 board)

Mode	POWER ON
Measuring instrument	Digital voltmeter
REG +5V check	
Measurement point	CN002 Pin ⑦
Specified value	4.85±0.02Vdc
REG +13V check	
Meaurement point	CN002 Pin ⑥
Specified value	13.0±0.2Vdc
REG −8V check	
Measurement point	CN002 Pin ④
Specified value	−8.0±0.1Vdc
REG −20V check	
Measurement point	CN002 Pin ③
Specified value	−20±0.1Vdc
UN REG +6V check	
Measurement point	CN001 Pin ①
Specified value	6.0±0.5Vdc
EVER +5V	
Measurement point	CN002 Pin ① (GND CN001 Pin ④)
Specified value	5.0±0.1Vdc

[Checking method]

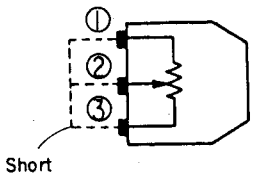
1) Each specified value should be satisfied.

[Caution] If you touch the back light holder, you may receive an electric shock. Be careful to perform the adjustment.

[Preparation]

1) The adjustment for 「Contrast adjustment」 「R contrast adjustment」 and 「B contrast adjustment」, the LCD unit is not required. Remove it and perform the adjustment.
2) Set the VR as follows if there is no special direction.
   - ●BRIGHT (RV009)
   - ●COLOR (RV001)

   ·····Set the mechanical center position and short among pin ①,② and ③.



[Video input signal for adjustment]

Input the color bar signal to GV-U5E input terminal, which the chroma signal and the burst signal are turned off, to the video input terminal as a video input signal for adjustment. Check with the CN001 pin ⑤ of the RG-24 board.

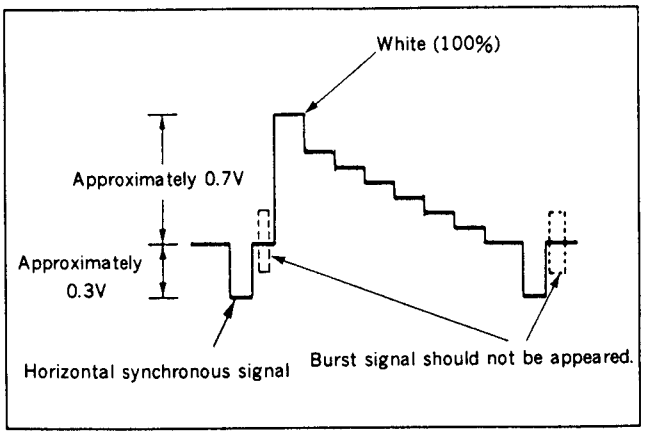


Fig. 7-2

7-3. Contrast Adjustment (RG-24 board)

Mode	POWER ON
Signal	Color bar which the chroma signal and the burst signal are turned off.
Measurement point	CN004 Pin ⑨ (G)
Measuring instrument	Oscilloscope
Adjustment element	RV006
Specified value	3.0±0.1Vp-p

[Adjustment Method]

1) Adjust with RV006 so that the voltage between white (100%) and the pedestal is 3.0±0.1V.

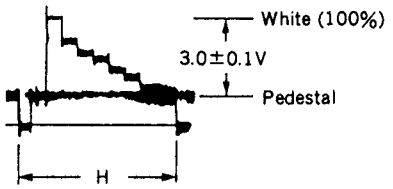


Fig. 7-3

7-4. R Contrast Adjustment (RG-24 board)

Mode	POWER ON
Signal	Color bar which the chroma signal and the burst signal are turned off
Measurement point	CN004 Pin ⑩ (R)
Measuring instrument	Oscilloscope
Adjustment element	RV005
Specified value	3.0±0.1Vp-p

[Adjustment Method]

1) Adjust with RV005 so that the voltage between white (100%) and the pedestal is 3.0±0.1V.

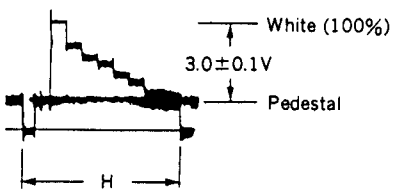


Fig. 7-4

7-5. B Contrast Adjustment (RG-24 board)

Mode	POWER ON
Signal	Color bar which the chroma signal and the burst signal are tured off
Measurement point	CN004 Pin ⑪ (B)
Measuring instrument	Oscilloscope
Adjustment element	RV003
Specified value	2.6±0.1Vp-p

[Adjustment Method]

1) Adjust with RV003 so that the voltage between white (100%) and the pedestal is 2.6±0.1V.

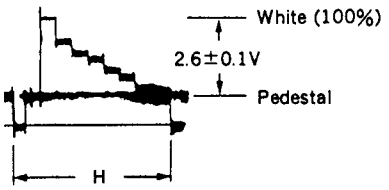


Fig. 7-5

7-6. Sub Bright Adjustment (RG-24 board)

Mode	POWER ON
Signal	Color bar which the chroma signal and the burst signal are turned off
Measurement point	CN004 Pin ⑨, Pin ⑩ and Pin ⑪ (G) (R) (B)
Measuring instrument	Oscilloscope (DC range)
Adjustment element	RV009, RV007, and RV008
Specified value	−3.4±0.1V

[Connection]

1) Install the LCD unit and perform the adjustment.

[Adjustment Method]

1) Adjust with RV009 so that the DC level of the pedestal part of the positive polarity G signal is −3.4±0.1Vdc.
2) Adjust with RV007 so that the DC level of the pedestal part of the positive polarity R signal is −3.4±0.1Vdc.
3) Adjust with RV008 so that the DC level of the pedestal part of the positive polarity B signal is −3.4±0.1Vdc.

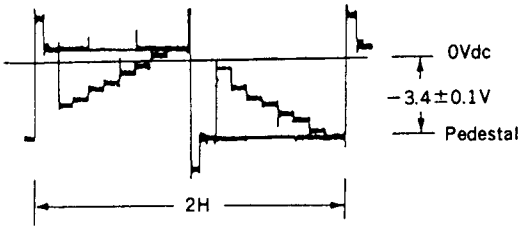


Fig. 7-6

7-7. White Balance Adjustment (RG-24 board)

Mode	POWER ON
Signal	Color bar which the chroma signal and the burst signal are turned off.
Measurement point	Check on the LCD screen
Measuring instrument	
Adjustment element	RV003 (B gain) RV005 (R gain)
Specified value	Screen should not be colored.

[Connection]

1) Perform the adjustment connecting the LCD unit and the back light.

[Adjustment Method]

1) Check that the LCD screen is not colored. If the screen is colored, adjust with RV003 (B gain) and RV005 (R gain).

7-8. fsc Adjustment (RG-24 board)

Mode	POWER ON
Signal	Video signal which the chroma signal, the burst signal and the Y signal are turned off.(Video signal with only synchronous signal)
Measurement point	IC002 Pin ④
Measuring instrument	Frequency counter
Adjustment element	CV002
Specified value	4433619±150Hz

Note: Connect the frequency counter through the buffer amplifier (oscilloscope, etc) with high impedance (1MΩ or more) and low capacity.

[Adjustment Method]

1) Adjust with CV002 so that the fsc frequency is 4433619±150Hz.

7-9. V COM DC Adjustment (RG-24 board)

Mode	POWER ON
Signal	Color bar which the chroma signal and the burst signal are turned off
Measurement point	LCD screen
Measuring instrument	Oscilloscope
Adjustment element	V COM DC VR on the LCD unit
Specified value	The amplitude of the flicker waveform is the minimum.

Note : Perform the 「V COM DC adjustment」 with assembling the LCD block.
Take care that the external light should not enter into the light receiving part of the COMMON voltage adjustment jig.

[Adjustment Method]

1) Expose the light receiving part of the COMMON voltage adjustment jig to the LCD screen. (Point down the LCD screen not to receive the external light.)
2) Connect the oscilloscope with the COMMON voltage adjustment jig.
3) Turn V COM DC VR and check that the flicker waveform as shown in the fig.7-7 is output.
(When the flicker waveform is not output, check the exposing method of the light receiving part and the external light condition, and check with turning the BRIGHT control.)
4) Minimize the flicker waveform amplitude with V COM DC VR.

Note : Turn V COM DC VR slowly because it takes long time to respond to LCD.
The minimum point of the flicker waveform amplitude is nearly coincided with the maximum point of the contrast.

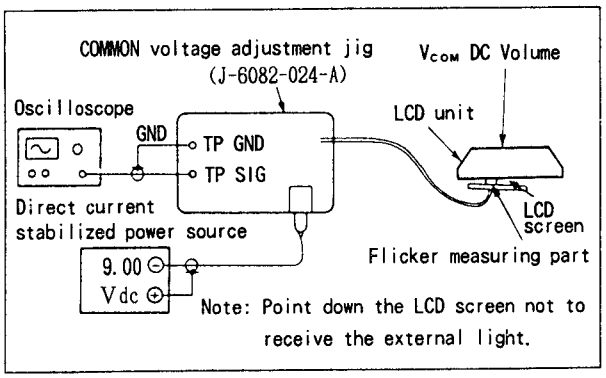


Fig. 7-7

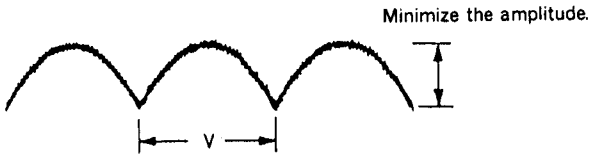


Fig. 7-8

7-10. Character Position Adjustment (RG-24 board)

Mode	POWER ON
Signal	Color bar
Measurement point	LCD screen
Measuring instrument	
Adjustment element	C V201
Specified value	10±1mm.

[Adjustment Method]

1) Turn on the data screen by DATA SCREEN button.
2) Adjust C V201 so that the distance *l* between right edge of LCD screen and right edge of data is 10±1mm.

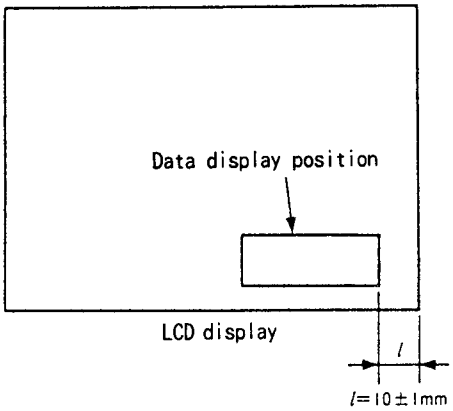


Fig. 7-9

7-11. Anti PAL Adjustment 1 (RG-24 board)

Mode	Power on
Signal	Video signal*1 with anti PAL signal
Measurement Point	IC001 pin ㊼
Measuring Instrument	Oscilloscope
Adjusting Element	RV002
Specified Value	Minimum amplitude of anti PAL sections

* 1. The waveform varies according to the signal.

[Adjustment Method]

1) Set the COLOR knob (RV001) to the MAX position.
2) Adjust the amplitude of the anti PAL sections to minimum with RV002.

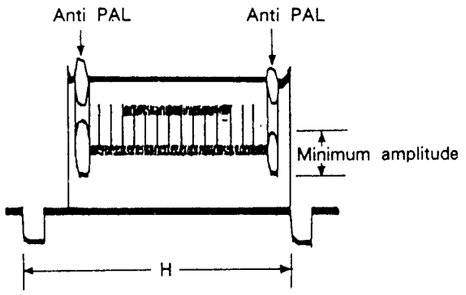


Fig. 7-10

7-12. Anti PAL Adjustment 2 (RG-24 board)

Mode	Power on
Signal	Video signal*1 with anti PAL signal
Measurement Point	LCD screen
Measuring Instrument	
Adjusting Element	CV001
Specified Value	No coloring of anti PAL sections

* 1. The pattern and anti PAL signal position vary according to the signal.

[Adjustment Method]

1) Set the COLOR knob (RV001) to the MAX position.
2) Adjust CV001 for minimum coloring of anti PAL sections.

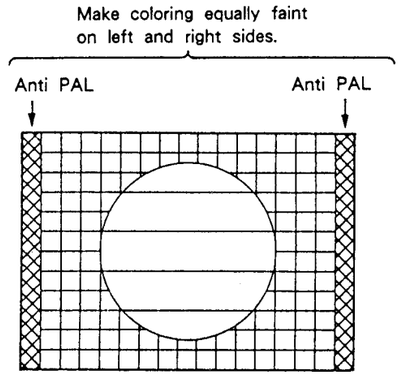


Fig. 7-11

7-13. Anti PAL Adjustment 3 (RG-24 board)

Mode	Power on
Signal	Color bars
Measurement Point	IC001 pin ㊼
Measuring Instrument	Oscilloscope
Adjusting Element	T001
Specified Value	Minimum amplitude of "green" section

[Adjustment Method]

1) Set the COLOR knob (RV001) to the MAX position.
2) Adjust the amplitude of the "green" section to minimum with T001.

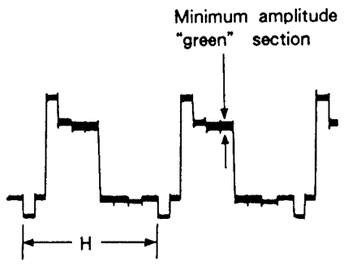


Fig. 7-12

ADJUSTING PARTS LOCATION DIAGRAM